

### **C) AMENDMENTS TO THE CLAIMS**

This listing of the claims will replace all prior versions, and listings of claims in the Application.

1. (original) A system for avoiding hypoxemia in at least one subject exposed to a reduced atmospheric pressure, the system comprising:
  - an air source to supply an oxygen mixture to at least one subject;
  - a microprocessor being configured to determine an increased risk of hypoxemia in the at least one subject and atmospheric conditions corresponding to hypoxemia in the at least one subject, the microprocessor activating the air source to provide the oxygen mixture to the at least one subject in response to a determination of the increased risk of hypoxemia or atmospheric conditions corresponding to the increased risk of hypoxemia in the at least one subject;
  - a first sensor to measure at least one physiological characteristic of the at least one subject, the first sensor transmitting a first signal to the microprocessor with the at least one physiological characteristic of the at least one subject;
  - wherein the microprocessor determines the increased risk of hypoxemia in the at least one subject by comparing the at least one physiological characteristic of the at least one subject with a predetermined value for the at least one physiological characteristic of the at least one subject, the microprocessor determining the increased risk of hypoxemia in response to the at least one physiological characteristic of the at least one subject being less than the predetermined value for the at least one physiological characteristic.
2. (original) The system of claim 1 wherein the at least one physiological characteristic is an oxygen red cell saturation level for arterial circulation.
3. (original) The system of claim 2 wherein the predetermined value for the oxygen red cell saturation level is about 91 percent.
4. (original) The system of claim 1 wherein the system is portable.
5. (original) The system of claim 1 wherein the system is for use in an aircraft.

6. (original) The system of claim 5 further comprising a first time reference measured from an instant the oxygen mixture is first being provided to the at least one subject, the at least one subject being required to perform an affirmative act to reset the first time reference, the first time reference being compared to a second predetermined period of time, wherein in response to the first time reference exceeding the second predetermined period of time, emergency procedures are initiated.
7. (original) The system of claim 6 wherein the emergency procedures include transmitting an automatic emergency message to a pre-programmed airport tower.
8. (currently amended) The system of claim 6 wherein the emergency procedures include automatically decreasing the aircraft altitude.
9. (original) The system of claim 1 wherein the system is for use in an aircraft having an unpressurized cabin.
10. (original) The system of claim 4 wherein the system is substantially incorporated within a single container.
11. (original) The system of claim 1 further comprising a second sensor to measure at least one atmospheric pressure of an area surrounding the at least one subject, the second sensor transmitting a second signal to the microprocessor with the at least one atmospheric pressure of an area surrounding the at least one subject, wherein the at least one physiological characteristic measurement and the at least one atmospheric pressure measurement are measured at substantially the same instant in time.
12. (original) The system of claim 11 wherein the at least one atmospheric pressure is measured pressure altitude in lineal units mean sea level.
13. (canceled)
14. (original) The system of claim 11 further comprising a storage device having at least one previously stored physiological characteristic measurement and an atmospheric pressure measurement measured at substantially the same instant of time as the at least one stored physiological characteristic measurement of the at least one subject, the storage device

transmitting a third signal to the microprocessor, the microprocessor determining atmospheric conditions corresponding to the increased risk of hypoxemia by comparing the atmospheric pressure measurement of the at least one previously stored physiological characteristic measurement with the at least one atmospheric pressure of the area surrounding the at least one subject, and the microprocessor determining atmospheric conditions corresponding to hypoxemia in response to the atmospheric pressure measurement of the at least one previously stored physiological characteristic measurement exceeding the at least one atmospheric pressure of the area surrounding the at least one subject.

15. (original) The system of claim 1 wherein the microprocessor is remote from the at least one subject.
16. (original) The system of claim 14 wherein the storage device is remote from the at least one subject.
17. (original) The system of claim 1 further comprising a warning device for providing at least one warning message to the at least one subject in response to receiving a signal from the microprocessor.
18. (original) The system of claim 17 wherein the at least one warning message is a signal in the form of an audio signal, a visual signal, a signal convertible to provide a tactile sensation or any combination thereof for the at least one subject.
19. (original) The system of claim 1 further comprising a first time reference measured from the instant the oxygen mixture is provided to the at least one subject, the at least one subject being required to perform an affirmative act to reset the first time reference, the first time reference being compared to a second predetermined period of time, wherein in response to the first time reference exceeding the second predetermined period of time, emergency procedures are initiated.
- 20.-26. (canceled)
27. (currently amended) A system for avoiding hypoxemia in at least one subject exposed to a reduced atmospheric pressure, the system comprising:

an air source to supply an oxygen mixture to at least one subject;

a microprocessor being configured to determine an increased risk of hypoxemia in the at least one subject and atmospheric conditions corresponding to the increased risk of hypoxemia in the at least one subject and to control the air source to provide the oxygen mixture to the at least one subject in response to the determination of the increased risk of hypoxemia or atmospheric conditions corresponding to the increased risk of hypoxemia in the at least one subject;

a pulse oximeter to measure at least one oxygen red cell saturation level for arterial circulation of the at least one subject, the pulse oximeter transmitting a first signal to the microprocessor with the at least one oxygen red cell saturation level for arterial circulation of the at least one subject;

wherein the microprocessor determines the increased risk of hypoxemia in the at least one subject by comparing the at least one oxygen red cell saturation level for arterial circulation of the at least one subject with a predetermined value of about 91 percent for the at least one oxygen red cell saturation level for arterial circulation of the at least one subject, the microprocessor determining the increased risk of hypoxemia in response to the at least one oxygen red cell saturation level for arterial circulation of the at least one subject being greater than the predetermined value for the at least one oxygen red cell saturation level for arterial circulation.

28.-50. (canceled)

51. (new) The system of claim 1 wherein the atmospheric conditions are obtained from personal flight data from the at least one subject.